

METHOD AND SYSTEM FOR VARYING AN ECHO CANCELLER FILTER  
LENGTH BASED ON DATA RATE

ABSTRACT

5           The present invention provides methods and systems for providing efficient use of  
available CPU cycles that may be achieved by reducing the length of the echo canceller  
filter. An echo canceller's adaptive algorithm may be implemented to reach a lower  
mean squared error due to the increased training time allowed by cycle reduction. Total  
power consumption of a processor may be reduced by reducing the number of  
10   multiplications (and/or other operations) that may be performed by an echo canceller  
filter for each time iteration. This may be achieved by not performing multiplications on  
taps that are not being used. For higher rates, a shorter echo canceller filter may be  
implemented by transmitting less energy in low frequencies. As a result, the temporal  
length of the echo channel may be shortened thereby reducing the total number of taps  
15   needed to model the channel. The present invention may further enhance performance by  
reducing CPU cycles and allowing for more echo canceller training time.